Communicating with Slip Boxes

An Empirical Account

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I

What follows is a piece of empirical sociology. It concerns me and someone else, namely my slip box [or index card file]. It should be clear that the usual methods of empirical sociology would fail in this special case. Still, it is empirical, as this case really obtains. And it is research, for we can—at least that is what I hope—generalize from it; even though one of the participants, or better: both of them, themselves generalize themselves .

For generalizations or research that also applies to other cases, we need problems, concepts, and, whenever possible, theories. For both of us, that is myself and my slip box, it is easy to think of systems theory. In any case, it is being presupposed. In spite of this, we choose a communicative theory starting point. No one will be surprised that we consider ourselves to be systems, but what about communication or even successful communication? One of us listens to the other? This needs to be explained.

That slip boxes can be recommended as partners of

communication is first of all due to a simple problem about technical and economic theoretical research. It is impossible to think without writing; at least it is impossible in any sophisticated or networked (*anschlußfähig*) fashion. Somehow we must mark differences, and capture distinctions which are either implicitly or explicitly contained in concepts. Only if we have secured in this way the constancy of the schema that produces information, can the consistency of the subsequent processes of processing information be guaranteed. And if one has to write anyway, it is useful to take advantage of this activity in order to create in the system of notes a competent partner o communication.

One of the most basic presuppositions of communication is that the partners can mutually surprise each other. Only in the way can information be produced in the respective other. Information is an intra-systematic event. It results when one compares one message or entry with regard to other possibilities. Information, accordingly, originates only in systems which possess a comparative schema—even if this amounts only to: "this or something else." For communication, we do not have to presuppose that both parties use the same comparative schema. The effect of surprise even increases when this is not the case and when we believe that a message means something (or is useful) against the background of other possibilities. Put differently, the variety in communicating systems increases when it may happen that the two partners successfully communicate in the face of different comparative goals. (This means that it is useful for the other partner.) This requires the addition of randomness (*Zufall*) into the system—randomness in the sense that the agreement of the different comparative schemata is not been fixed, or that the information which is transmitted by

communication is correct, but rather that this happens (or does not happen) "at the occasion" of communication.

If a communicative system is to hold together for a longer period, we must choose either the rout of highly technical specialization or that of incorporating randomness and information generated ad hoc. Applied to collections of notes, we can choose the route of thematic specialization (such as notes about governmental liability) or we can choose the route of an open organization. We decided for the latter. After more than twenty-six years of successful and only occasionally difficult co-operation, we can now vouch for the success or at least the viability of this approach.

Naturally, the route that creates a partner in communication that is meant for the long haul, is open, and not thematically limited (but only limiting itself), makes certain structural demands on the partners. You might, given the great trust that is still being put in the abilities of human beings, trust that I fulfill these presuppositions. But what about the slip box? How must it be conceived that he will acquire the corresponding communicative competence? I cannot answer this question deductively, not by means of a review of all the possibilities and the selection of the best. We shall remain at the bathos of experience and give only a description saturated by theory.

II

The technical requirements of slip boxes involve wooden boxes, which have drawers that can be pulled open, and pieces of paper in octavo format (about half of a letter-size sheet). We should only write on one side of these papers so that in searching

through them, we do not have to take out a paper in order to read it. This doubles the space, but not entirely (since we would not write on both sides of all the slips). This consideration is not unimportant as the arrangement of boxes can, after some decades, become so large that it cannot be easily be used from one's chair. In order to counteract this tendency, I recommend taking normal paper and not card stock.

These are mere externalities, which concern only how easy the card index can be used. They do not concern its functionality (*Leistung*). For the inner life of the card index, for the arrangement of notes or its mental history, it is most important that we decide against the systematic ordering in accordance with topics and sub-topics and choose instead a firm fixed place (*Stellordnung*). A system based on content, like the outline of a book) would mean that we make a decision that would bind us to a certain order for decades in advance! This necessarily leads very quickly to problems of placement, if we consider the system of communication and ourselves as capable of development. The fixed filing place needs no system. It is sufficient that we give every slip a number which is easily seen (in or case on the left of the first line) and that we never change this number and thus the fixed place of the slip. This decision about structure is that reduction of the complexity of possible arrangements, which makes possible the creation of high complexity in the card file and thus makes possible its ability to communicate in the first place.

Fixed numbers, abstracted from any content-based order relying on the entire structure has a number of advantages which, taken together, enable us to reach a higher type of order. These advantages are:

1. The possibility of arbitrary internal branching. We do not need to add notes at the end, but we can connect them anywhere —even to a particular word in the middle of a continuous text. A slip with number 57/12 can then be continued with 57/13, etc. At the same time it can be supplemented at a certain word or thought by 57/12a or 57/12b, etc. Internally, this slip can be complemented by 57/12a1, etc. On the page itself I use red letters or numbers in order to mark the place of connection. There can be several places of connection on a slip. In this way, a kind of internal growth (*Wachstum nach innen*) is made possible, depending on what kind of material for thought occurs. The disadvantage is that the originally continuous text is often broken up by hundreds of intermediate slips. But if we systematically number the papers, we can find the original textual whole easily.

2. Possibility of linking (***Verweisungsmöglichkeiten***)**.** Since all papers have fixed numbers, you can add as many references to them as you may want. Central concepts can have many links which show on which other contexts we can find materials relevant for them. Through references, we can, without too work or paper, solve the problem of multiple storage. Given this technique, it is less important where we place a new note. If there are several possibilities, we can solve the problem as we wish and just record the connection by a link [or reference]. Often the context in which we are working suggests a multiplicity of links to other notes. This is especially the case when the card index is already voluminous. In such cases it is important to capture the connections radially, as it were, but at the same time also by right away recording back links in the slips that are being linked to. In this working procedure, the content that we take note of is usually also enriched

3. Register. Considering the absence of a systematic order, we must regulate the process of rediscovery of notes, for we cannot rely on our memory of numbers. (The alternation of numbers and alphabetic characters in numbering the slips helps memory and is an optical aid when we search for them, but it is insufficient. Therefore we need a register of keywords that we constantly update. The [fixed] numbers of the particular slips is also indispensable for the register. Another complementary aid can be the bibliographical apparatus. Bibliographical notes which we extract from the literature, should be captured inside the card index. Books, articles, etc., which we have actually read, should be put on a separate slip with bibliographical information in a separate box. You will then not only be able to determine after some time what you actually read and what you only noted to prepare reading, but you can also add numbered links to the notes, which are based on this work or were suggested by it. This proves to be helpful because our own memory—others will have similar experiences to mine—works in part with key words and in part with author's names.

As a result of extensive work with this technique a kind of secondary memory will arise, an alter ego with who we can constantly communicate. It proves to be similar to our own memory in that it does not have a thoroughly constructed order of its entirety, not hierarchy, and most certainly no linear structure like a book. Just because of this, it gets its own life, independent of its author. The entirety of these notes can only be described as a disorder, but at the very least it is a disorder with non-arbitrary internal structure. Some things will get lost (*versickern*), some notes we will never see again. On the other hand, there will be preferred centers, formation of lumps and regions with which we will work more often than with others.

There will be complexes of ideas that are conceived at large, but which will never be completed; there will be incidental ideas which started as links from secondary passages and which are continuously enriched and expand so that they will tend increasingly to dominate system. To sum up: this technique guarantees that its order which is merely formal does not become a hindrance but adapts to the conceptual development.

Similarly as epistemology has given up the idea that there are "privileged representations" that allow us to control the truth value of other representations or claims, we must give up the idea in preparing a card index that there should be privileged places or slips that have a special quality of guaranteeing knowledge. Every note is only an element which receives its quality only from the network of links and back-links within the system. A note that is not connected to this network will get lost in the card file and ill be forgotten by it. Its rediscovery depends on accidents and on the vagary that this rediscovery means something at the time it is found.

III

If you wish to educate a partner in communication, it will be good to provide him with independence from the beginning. A slip box, which has been made according to the suggestions just given can exhibit great independence. There may be equally apt ways to reach this goal. The described reduction to a fixed, but merely formal order of placement and the resulting combination of order and disorder is, however, one of these ways.

Naturally, independence presupposes a minimal measure of intrinsic complexity. The slip box needs a number of years in

order to reach critical mass. Until then, it functions as a mere container from which we can retrieve what we put in. This changes with its growth in size and complexity. On the one hand, the number of approaches and occasions for questions increases. The slip box becomes a universal instrument. You can place almost everything in it, and this not just ad hoc and in isolation, but with internal possibilities of connections [with other contents]. It becomes a sensitive system that internally reacts to many ideas, as long as they can be noted down. If we ask, for instance, why on the one hand museums are empty, while on the other hand exhibitions of paintings by Monet, Picasso, or Medici are too crowded, the slip box accepts this question under the perspective of "preference for what is temporally limited." The connections that already exist internally are, of course, selective, as this example was to prove. They also do not fall into the limits of what is obvious because we must cross the border between the one who takes note and the slip box itself. Every new entry can of course become isolated, like with the key word "Picasso" for the Picasso exhibition. If, however, we seek communication with the slip box, we must seek internal possibilities for linkings which result in the unexpected (i.e. information). We could try to generalize the experiences of Paris, Florence, New York under general concepts like "art" or "exhibitions," or "crowding" (inter-actionistic), or "mass," or "freedom" or "education," in order to see how the slip box reacts. Usually it is more fruitful to look for formulations of problems that relate heterogeneous things with each other.

In any case, communication becomes more fruitful when we succeed to activate the internal network of links at the occasion of writing notes or making queries. Memory does not function as the sum of point by point accesses, but rather utilizes internal

relationships and becomes fruitful only at this level of the reduction of its own complexity. In this way, more information becomes available at this isolated moment of an search impulse than one had in mind. There is also more information than was ever stored in the form of notes, The slip box provides combinatorial possibilities which were never planned, never preconceived, or conceived in this way. This effect of innovation is based on the one hand on the circumstance that the query provokes possibilities of making relations which could not be traced prior to it. On the other hand, it is based also on the fact that the internal horizons of selection and comparisons are not identical with schema of searching for them.

In comparison with this structure, which offers possibilities of connection that can be actualized, the importance of what has actually been noted is secondary. Many of the notes will soon become unusable or cannot be used at a given occasion. This holds both for excerpts which are only useful in the case of especially remarkable formulations and for our own deliberations. Theoretical publications do therefore not result from simply copying what can already be found in the slip box. The communication with the slip box becomes fruitful only at a high level of generalization, namely that of establishing communicative relations of relations. And it becomes productive only at the moment of evaluation, and is thus bound to a certain time and is to a high degree accidental.

IV

One might ask whether the results of this kind of communications are not perhaps also accidental. This would, however, amount to a conjecture that is too quick. The role of

accidents in the theory of science is not disputed, If you employ evolutionary models, accidents assume a most important role. Without them, nothing happens, no progress is made. Without variation in the given material of ideas, there are no possibilities of examining and selecting novelties. The real problem thus becomes therefore one of producing accidents with sufficiently enhanced probabilities for selection. As we know from the analysis of processes of mutation in biological evolution, mutations are complex and highly regulated events, which only because they are preselected at their own level exhibit that kind of stability that is the presupposition for selective permanence. They are accidents in the sense that they are not tuned to the factors that select them, but they depend themselves on complex orders.

This parallel should not be exaggerated; but you will not be mistaken in the assumption that in society and especially in the realm of scientific research order results only from a combination of disorder and order. But this claim about origins does not disable the conditions of examination. On the contrary, they are enabled. In contradistinction to the alien distinction between origin and value, we start today from the assumption that to isolate these two aspects from each other is neither possible nor methodologically meaningful, for even the creation of random suggestions requires organization, and if only in order to be sufficient for the demands of speed, accumulation and probability of success, which are necessary within a dynamic society.

At the abstract level of empirical investigation concerned with the theory of science is communication with slip boxes certainly only one of many possibilities. The accidents of reading play a

role just as much as misunderstandings resulting from interdisciplinary thought processes. We can confirm hat communication with slip boxes may be considered as a functional equivalent and that this approach, compared to others, has many advantages as far as speed, and mutual adaptability is concerned.

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